

Notice of Allowability

Application No.

09/865,197

Examiner

Jeanne A. Di Grazio

Applicant(s)

HANAKAWA ET AL.

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Response of March 5, 2004.
2. ☒ The allowed claim(s) is/are 1,3-15,17-22,25,26,29-32 and 35.
3. ☒ The drawings filed on 24 May 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. Certified English translations of: 2000-154697 (May 25, 2000), 2000-154699 (May 25, 2000), and 2001-103496 (April 2, 2001) have been received.

Allowable Subject Matter

Claims 1, 3-15, 17-22, 25, 26, 29-32, and 35 are allowed. Claims 2, 16, 23, 24, 27, 28, 33, 34, 36, and 37 have been cancelled pursuant to Response of March 5, 2004.

The following is an examiner's statement of reasons for allowance:

As to claim 1, relevant art of record did not disclose, alone or in combination, a liquid crystal device comprising: a reflective film containing silver, a protective film provided over the reflective film, a first lead comprising a metal film, wherein the metal film of the first lead has an average diameter of crystal grains in the metal film that is larger than an average diameter of crystal grains in the reflective film, and in conjunction with the other claimed limitations.

The above limitations along with the other recited limitations of Claim 1 result in a novel reflective film and liquid crystal display in which a decrease in reflectance is prevented during a high-temperature treatment.

Related art, United States Patent 6,509,942 B2 (to Tanaka et al.) discloses a reflection electrode. The reflection electrode has a dual layered structure of molybdenum and aluminum.

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The maximum grain size within the molybdenum film is 60nm or less. Tanaka does not appear to explicitly disclose, however, the combination of the silver film and metal lead wherein the average diameter of the crystal grains in the metal film is larger than the average diameter of the crystal grains in the silver reflective film. Furthermore, Applicant has perfected Applicant's claim to foreign priority to sufficiently disqualify the Tanaka reference as prior art because Applicant has submitted certified English translations of all foreign priority documents (see above, "Priority").

As to claim 19, relevant art of record did not disclose, alone or in combination, a liquid crystal device comprising: a reflective film containing silver, first transparent electrodes provided on the reflective film, second transparent electrodes on a second substrate, dots formed corresponding to crossings of the first transparent electrodes, a plurality of dots defining one pixel, different color layers assigned to the dots defining the one pixel, the color layers containing a blue layer and a red color layer, and the distance from a white coordinate point to a coordinate point of the light which passes through the blue color layer is larger than the distance from the white coordinate point to the coordinate point of the light which passes through the red color layer in an x-y chromaticity diagram.

The above limitations result in a novel liquid crystal device in which light containing the enhanced blue light components is reflected by the reflective film, which attenuates the blue light components, and is emitted to the viewer. The light that is reflected to the viewer is white because of a balance of intensity among red, green, and blue components.

Related art United States Patent 6,147,728 (to Okumura et al.) discloses a reflective color liquid crystal display having particular transmissivity but fails to disclose or fairly suggest a

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distance from a white coordinate point to a coordinate point of the light passing through a blue color layer larger than the distance from the white coordinate point to the coordinate point of light passing through a red color layer in an x-y chromaticity diagram and in conjunction with the other recited limitations of claim 19.

As to claim 20, relevant art of record did not disclose, alone or in combination, a liquid crystal device comprising: a reflective film containing metal, a first lead comprising a metal film, wherein the metal film of the first lead has an average diameter of crystal grains in the metal film that is larger than an average diameter of crystal grains in the reflective film, and in conjunction with the other claimed limitations.

The above limitations along with the other recited limitations of Claim 20 result in a novel reflective film and liquid crystal display in which a decrease in reflectance is prevented during a high-temperature treatment.

Related art, United States Patent 6,509,942 B2 (to Tanaka et al.) discloses a reflection electrode. The reflection electrode has a dual layered structure of molybdenum and aluminum. The maximum grain size within the molybdenum film is 60nm or less. Tanaka does not appear to explicitly disclose, however, the combination of metal film and metal lead wherein the average diameter of the crystal grains in the metal film is larger than the average diameter of the crystal grains in the reflective film. Furthermore, Applicant has perfected Applicant's claim to foreign priority to sufficiently disqualify the Tanaka reference as prior art because Applicant has submitted certified English translations of all foreign priority documents (see above, "Priority").

As to claims 22 and 35, relevant art of record did not disclose, alone or in combination, a method for making a liquid crystal device comprising the steps of: providing a reflective film

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containing silver on a first substrate, providing a protective film provided over the reflective film, providing a first lead comprising a metal film, wherein the metal film of the first lead has an average diameter of crystal grains in the metal film that is larger than an average diameter of crystal grains in the reflective film, and in conjunction with the other claimed limitations.

The above steps along with the other recited limitations of Claims 22 and 35 result in a novel reflective film and liquid crystal display in which a decrease in reflectance is prevented during a high-temperature treatment.

Related art, United States Patent 6,509,942 B2 (to Tanaka et al.) discloses a reflection electrode. The reflection electrode has a dual layered structure of molybdenum and aluminum. The maximum grain size within the molybdenum film is 60nm or less. Tanaka does not appear to explicitly disclose, however, the combination of the silver film and metal lead wherein the average diameter of the crystal grains in the metal film is larger than the average diameter of the crystal grains in the silver reflective film. Furthermore, Applicant has perfected Applicant's claim to foreign priority to sufficiently disqualify the Tanaka reference as prior art because Applicant has submitted certified English translations of all foreign priority documents (see above, "Priority").

As to claims 3-14, 17, 18, 21, 25, 26, and 29-32, they are directly or indirectly dependent upon claims with allowable subject matter above.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio

Robert Kim, SPE

Patent Examiner
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ROBERT W. KIM
SUPERVISOR
EXAMINER